

S. Ganguly
NCTS# 25415-17 AGU 2016

Remotely sensed northern vegetation response to changing climate: growing season and productivity perspective

Vegetation growing season and maximum photosynthetic state determine spatiotemporal variability of seasonal total gross primary productivity of vegetation. Recent warming induced impacts accelerate shifts on growing season and physiological status over Northern vegetated land. Thus, understanding and quantifying these changes are very important. Here, we first investigate how vegetation growing season and maximum photosynthesis state are evolved and how such components contribute on inter-annual variation of seasonal total gross primary productivity. Furthermore, seasonally different response of northern vegetation to changing temperature and water availability is also investigated. We utilized both long-term remotely sensed data to extract larger scale growing season metrics (growing season start, end and duration) and productivity (i.e., growing season summed vegetation index, GSSVI) for answering these questions. We find that regionally diverged growing season shift and maximum photosynthetic state contribute differently characterized productivity inter-annual variability and trend. Also seasonally different response of vegetation gives different view of spatially varying interaction between vegetation and climate. These results highlight spatially and temporally varying vegetation dynamics and are reflective of biome-specific responses of northern vegetation to changing climate.

Authors

[Taejin Park](#)

- Boston University

[Sungho CHOI](#)

- Boston University

[Sangram Ganguly](#)

sangram.ganguly@nasa.gov

- NASA Ames Research Center

[Jian Bi](#)

jian.bi@nasa.gov

Boston University

[Yuri Knyazikhin](#)

- Boston University

[Ranga Myneni](#)

- Boston University